

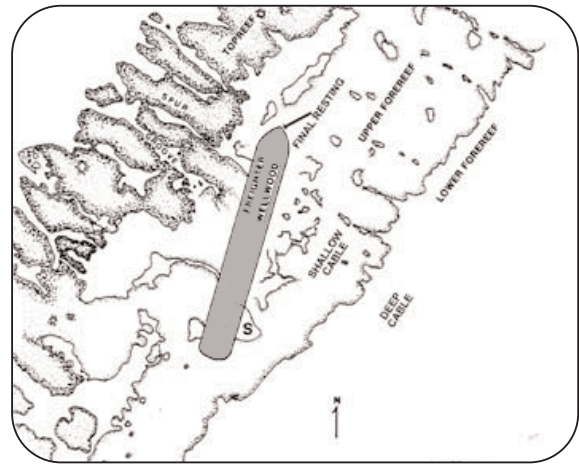


## Biological Restoration Begins at Molasses SPA

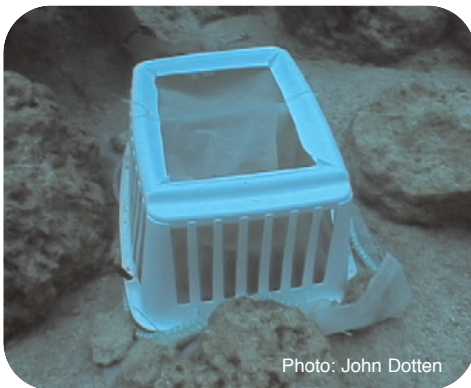
Nancy Diersing, FKNMS Education Specialist

After delays due to high seas and stormy summer weather, the Sanctuary Wellwood Restoration Team was able to place 22 reef restoration modules and many limestone rocks throughout the injury site at Molasses Reef, thus completing the physical restoration of the *M/V Wellwood* grounding site. The restoration modules, which are made of limestone rocks and concrete and contain a central “cave”, will prevent further erosion of the reef infrastructure and provide habitat for fish and invertebrate life. Using a special mixture of concrete, the modules were securely attached to the limestone seafloor throughout the injured area at heights similar to those of the surrounding natural reef structures.

The goal of the project is to restore the reef to the greatest extent possible, to a state similar to what existed before the injury occurred. Because Molasses Reef is a Sanctuary Preservation Area and a high profile tourist destination, the Sanctuary believes it especially important to design an aesthetically pleasing restoration solution for this grounding site.



After the grounding incident, a diagram was made showing the position of the ship in relation to the extensive “spur and groove” formation of the coral reef (above).



To increase the chances of coral colonization, mesh-lined baskets containing coral larvae were temporarily placed over bare rocks at the Wellwood Restoration site.

Scientists have recently started applying biological restoration techniques to the site. Coral biologists Dr. Alina Szmant, University of North Carolina at Wilmington, and Dr. Margaret Miller, NOAA-Fisheries, collected coral larvae from mountainous star corals that were spawning in sanctuary waters during late summer. The larvae were cultured until they reached the settlement stage in their development. The larvae were then released into mesh-lined baskets temporarily placed over the limestone rocks at the restored site. This technique is expected to foster the settlement of young corals onto the uncolonized rock surface.

Fish populations on the new structure are being monitored by Reef Environmental Education Foundation’s (REEF) Advance Assessment Team and staff using Roving Diver surveys and belt transect techniques. These techniques enable biologists to collect information about the numbers and species of all fish encountered and to document the size and density of key reef fish species. The first surveys and transects were conducted at the injury site and two adjacent natural reef areas before the physical restoration process began, providing baseline information

for comparison purposes. The five-year project is designed to track the changes in fish species composition over time and to evaluate restoration sites as effective replacements for natural habitat in areas damaged by vessel groundings.

Many program offices within the National Oceanic and Atmospheric Administration (NOAA) played key roles in the restoration process. In addition to the National Marine Sanctuary staff, NOAA's Damage Assessment and Restoration Program brought legal, economic, and biological expertise from the National Ocean Service (NOS), National Marine Fisheries Service (NMFS), and the Office of General Counsel. The State of Florida and the U.S. Coast Guard were partners in the effort as were two private companies, Underwater Engineering Services, Inc. and Coastal Planning and Engineering, Inc., each contracted for certain aspects of the job. For more information about the restoration of the Wellwood site, visit: <http://sanctuaries.nos.noaa.gov.special/reef/>.

*Note: This article appeared in the Fall 2002 issue of the newsletter of the Florida Keys National Marine Sanctuary, Sounding Line. For more information, visit: [floridakeys.noaa.gov](http://floridakeys.noaa.gov).*